

Supplementary file 1

Table S1. Solubility ratio of buspirone HCl II/I in different compositions of 2-propanol + water at 293.15 K

Fraction of 2-propanol	Ratio
0.00	1.88
0.20	1.52
0.40	1.57
0.60	1.58
0.80	1.08
1.00	1.86

Table S2. Solubility ratio of buspirone HCl II/I in neat 2-propanol at different temperatures

Temperature	Ratio
293.15	1.86
303.15	1.70
308.15	1.15
313.15	1.02
318.15	1.99

328.15	2.62
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Table S3. The solvent parameters used in the computations of Eq. (3) and other models

Solvent	CAS #	Abraham parameters						
		<i>c</i>	<i>e</i>	<i>s</i>	<i>a</i>	<i>b</i>	<i>v</i>	
1-Methylpyrrolidin-2-one	872-50-4	0.15	0.53	0.23	0.84	-4.79	4.37	
Butan-1-ol	71-36-3	0.17	0.40	-1.01	0.06	-3.96	4.04	
Butan-2-ol	78-92-2	0.13	0.25	-0.98	0.16	-3.88	4.11	
Ethanol	64-17-5	0.22	0.47	-1.04	0.33	-3.60	3.86	
Ethyl acetate	141-78-6	0.33	0.31	-0.35	-0.85	-4.90	4.14	
Formamide	75-12-7	-0.17	0.07	0.31	0.59	-3.15	2.43	
Methyl acetate	79-20-9	0.35	0.22	-0.15	-1.04	-4.53	3.97	
Methyl tert-butyl ether	1634-04-4	0.38	0.26	-0.79	-1.08	-5.03	4.41	
N,N-Dimethylformamide	68-12-2	-0.31	-0.06	0.34	0.36	-4.87	4.49	
Pentan-1-ol	71-41-0	0.15	0.54	-1.23	0.14	-3.86	4.08	
Propan-1-ol	71-23-8	0.14	0.41	-1.03	0.25	-3.77	3.99	
Propan-2-ol	67-63-0	0.10	0.34	-1.05	0.41	-3.83	4.03	
Propan-2-one	67-64-1	0.31	0.31	-0.12	-0.61	-4.75	3.94	
		Catalan parameters				Hansen parameters		
		<i>SP</i>	<i>SdP</i>	<i>SA</i>	<i>SB</i>	δ_{D_s}	δ_{P_s}	δ_{H_s}
1-Methylpyrrolidin-2-one		0.81	0.96	0.02	0.61	18.00	12.30	7.20
Butan-1-ol		0.67	0.66	0.34	0.81	16.00	5.70	15.80
Butan-2-ol		0.66	0.71	0.22	0.89	15.80	5.70	14.50
Ethanol		0.63	0.78	0.40	0.66	15.80	8.80	19.40
Ethyl acetate		0.66	0.60	0.00	0.54	15.80	5.30	7.20
Formamide		0.81	1.01	0.55	0.41	17.20	26.20	19.00
Methyl acetate		0.65	0.64	0.00	0.53	15.50	7.20	7.60
Methyl tert-butyl ether		0.62	0.42	0.00	0.57	14.80	4.30	5.00
N,N-Dimethylformamide		0.76	0.98	0.03	0.61	17.40	13.70	11.30
Pentan-1-ol		0.69	0.59	0.32	0.86	15.90	5.90	13.90
Propan-1-ol		0.66	0.75	0.37	0.78	16.00	6.80	17.40
Propan-2-ol		0.63	0.81	0.28	0.83	15.80	6.10	16.40
Propan-2-one		0.65	0.91	0.00	0.48	15.50	10.40	7.00

Table S4. Solubility ratio of clopidogrel hydrogen sulfate II/I in different compositions of ethyl acetate + 2-butanol mixtures at various temperatures

Fraction of ethyl acetate	Mean	S.D.	T	Ratio
0.0	1.35	0.15	283.15	1.19
			293.15	1.37
			298.15	1.28
			303.15	1.34
			313.15	1.60
0.1	1.25	0.11	283.15	1.12
			293.15	1.14
			298.15	1.35
			303.15	1.34
			313.15	1.28
0.2	1.22	0.16	283.15	1.04
			293.15	1.05
			298.15	1.31
			303.15	1.39
			313.15	1.31
0.3	1.31	0.17	283.15	1.17
			293.15	1.47
			298.15	1.49
			303.15	1.11
			313.15	1.32
0.4	1.41	0.04	283.15	1.45
			293.15	1.38
			298.15	1.39
			303.15	1.47
			313.15	1.37
0.5	1.59	0.14	283.15	1.62
			293.15	1.38
			298.15	1.58
			303.15	1.61
			313.15	1.78
0.6	1.52	0.09	283.15	1.49
			293.15	1.58
			298.15	1.46
			303.15	1.43
			313.15	1.65
0.7	1.39	0.08	283.15	1.33
			293.15	1.42
			298.15	1.32
			303.15	1.39
			313.15	1.39
0.8	1.28	0.05	283.15	1.32

			293.15 298.15 303.15 313.15	1.26 1.34 1.25 1.22
0.9	1.31	0.11	283.15 293.15 298.15 303.15 313.15	1.13 1.34 1.44 1.31 1.33
1.0	1.32	0.07	283.15 293.15 298.15 303.15 313.15	1.28 1.22 1.30 1.38 1.40

Table S5. Solubility ratios of glycine γ/α in organic solvent + water mixtures at 310 K

Fraction of organic solvent	Methanol	Ethanol	2-Propanol	Acetone
0.0	0.97	0.97	0.97	0.97
0.1	0.95	0.98	0.97	0.91
0.2	0.96	0.97	0.94	0.98
0.3	0.96	0.96	0.92	0.97
0.4	0.95	0.98	0.96	0.94
0.5	0.96	0.91	0.96	0.59
0.7	1.00	0.80	1.00	1.00
1.0	0.50	-	-	4.00

Table S6. Solubility ratio of indomethacin α/γ in different compositions of acetone + water at 327.15 K

Fraction of acetone	Ratio
0.00	0.57
0.17	0.50
0.30	0.79
0.50	0.99
0.70	1.14
0.83	1.07
1.00	1.15

Table S7. Solubility ratios of mefenamic acid II/I in two binary solvent mixtures at 298.15 K

Fraction of ethanol	Ethanol + water	Ethyl acetate + ethanol
0.00	1.36	1.28
0.05	-	1.17
0.10	-	-
0.20	-	1.10
0.30	1.15	1.14
0.40	-	1.14
0.50	1.35	1.16
0.60	1.21	-
0.70	-	1.22
0.80	1.35	-
0.90	-	-
1.00	1.40	1.40